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ROCKS and MINERALS

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Vol. 8. No. 4

DECEMBER, 1933

Whole No. 30



Arthur H. Norton, Photo.

DENNIS HILL, LITCHFIELD, MAINE
(The boulders shown are nephelite-syenites (litchfieldites))

ROCKS and MINERALS
IS NOW A
MONTHLY

A NON-TECHNICAL MAGAZINE
—ON—
MINING - PROSPECTING - GEOLOGY - MINERALOGY

THE BULLETIN BOARD



Merry Christmas and
Happy New Year



TO ALL OUR READERS!

May January 1st usher in a year overflowing with Health, Happiness and Prosperity to all is our sincere wish.

P. S.:—May jolly old Santa Claus make this a Mineralogical Christmas by remembering each and everyone of our readers with many choice specimens.

ROCKS and MINERALS IS NOW A MONTHLY!

It is a matter of great satisfaction to us in announcing that with this issue ROCKS and MINERALS comes out monthly with no increase in subscription price. This is a step that has long since been contemplated but could not be carried out until now. We are very sure that in having the magazine come out monthly the interest in mineralogy will be greatly stimulated and increased and we shall look forward with keen anticipation to the realization of these hopes.

We trust our readers may have found much of interest and profit in the quarterly that is now ended. We are hoping to make the magazine even more interesting in its articles during its existence as a monthly.

NEW ADVERTISING RATES FOR THE MONTHLY

One page	\$12.00	3rd cover	\$15.00
Half page	7.00	Back cover	20.00
Quarter page	4.00	Classified Ads	2c a word
One inch	1.25	Prof. Directory	7.00 a year

Forms for the February issue will close January 10th.

WANTED: Correspondents in all parts of the world who will be kind enough to send us notes and news items on minerals, that they think may be interesting to the subscribers of ROCKS and MINERALS. Such as are available we shall be very glad to print in the magazine.





ROCKS and MINERALS

A NON-TECHNICAL MAGAZINE

—ON—

MINING - PROSPECTING - GEOLOGY - MINERALOGY

Published
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VOL. 8, No. 4



Whole Number 30

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*Authors alone are responsible for statements made
and opinions expressed in their respective articles.*

ROCKS AND MINERALS

PEEKSKILL, N. Y., U. S. A.

The Official Journal of the Rocks and Minerals Association

Fluorescent Fluorite

We have a large supply of the remarkable fluorescent Fluorite from Clay Center, Ohio. Honey brown in color with intergrown Celestite. Whether you are interested in fluorescence or not, this material makes attractive specimens and should be represented in your collection. 1" — 15c; 1½" — 20c; 2" — 50c; 3" — \$1.00; 4" — \$1.50.

"ARKANSAS ROSES"

"Arkansas Roses", Barite concretions, the folds of which resemble the petals of a rose. We haven't a large number, the best will go to those who order early. They run from ½" to 1" in diameter. Prices 25c each.

QUARTZ CRYSTALS

A new lot. Perfect, clear, terminations. 1½" — 15c; 2" — 25c; 3" — 50c; 4" — 75c. If interested in quartz crystals, drop us a card. We will be glad to tell you more about what we have. Fat crystals and slim crystals, clear crystals and cloudy ones, doubly terminated crystals, groups, etc.

VANADINITE

We now have a line of lower priced crystallized red Vanadinite. Not as fine as our higher priced specimens but of surprising quality for the money. 1" — 15c; 1½" — 25c; 2" — 40c; 3" — 75c.

Our lists will give you prices on Turquoise, Tourmaline, Agate, Datolite, Cuprite, Zarazite, Rhodochrosite, Smaltite, Celestite, Wolframite, Neptunite and many other minerals.

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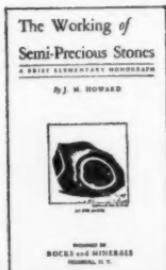
For The Advanced Collector

I have for sale rare crystals and specimens suitable
only for the better collections.

LUCIAN M ZELL

522 Fifth Avenue

New York, N. Y.



The Working of Semi-Precious Stones

By J. H. HOWARD

A Brief Elementary Monograph

This publication, written in non-technical language, has been prepared to meet the needs of amateur collectors who wish information on the cutting and polishing of gems. It contains 44 pages, 18 plates and 12 figures. Price \$1.00 per copy.

ROCKS AND MINERALS

PEEKSKILL, N. Y.

P. S.—Saw your Ad. in Rocks and Minerals

ROCKS and MINERALS

Edited and Published by Peter Zodac

PUBLISHED
MONTHLY

DECEMBER
1933

The Official Journal
of the
Rocks and Minerals
Association

Luminescence of Fluorite

From Clay Center, Ohio

By
E. MITCHELL GUNNELL

Without doubt the most striking observation recently made in the field of mineral luminescence is that of the photo-luminescence of fluorite from Clay Center, Ohio. While references to this have already been published,¹ the exceptional brilliance of the fluorescence together with other unique features appeared to the writer to justify a complete description of this material.

The fluorite is found in the quarry of the Kelly Island Stone Company at Clay Center, Ottawa County, Ohio, a small village some ten miles southeast of Toledo. Dolomitic limestone of Silurian age (Niagaran) is here extensively quarried for industrial uses. The fluorite occurs in a narrow but quite definite zone extending across the face of the workings from southeast to northwest, and for the most part is found as small ($\frac{1}{8}$ to $\frac{1}{4}$ of an inch on an edge) cubic crystals scattered over the inner surfaces of irregularly shaped cavities in the porous rock. Many of these cavities are due to the dissolving away of large pelecypods (*megalomus*). Celestite crystals of colorless to very light sky-blue hue are very common throughout the quarry, and occur in close association with the fluorite. They are not of very good specimen quality, however, being much rounded, poorly terminated, and usually much fractured. Vugs have been infrequently found that contained very beautiful crystals, but none

were noted by the writer on several visits to the quarry. The fluorite is brown in color and ranges in hue from an almost colorless, very light wine shade through brownish-yellow and yellowish-brown to a very deep, blackish-brown. The small crystals mentioned above are characteristically of the intermediate shades of brown. Several large masses of a deeply colored, granular crystalline fluorite shot through with celestite crystals have been found. These were evidently from a very unusual concentration of the mineral, and have been entirely broken up and carried away by collectors. This material was full of vugs into which relatively large ($\frac{1}{2}$ to $\frac{1}{4}$ of an inch on an edge) and perfect crystals projected, and it furnished some very beautiful specimens. It appears improbable to the writer that another such mass will be uncovered very soon if at all and in this event, the entire supply of cabinet quality material is now exhausted. The fluorite crystals are always sharp, transparent to translucent in the deeply colored centers, and highly lustrous.

The large crystals of deep color exhibit a striking fluorescence in sunlight. When viewed in transmitted light their true color, a fine golden-brown, is seen; this is deepest in the centers of the crystals. But when seen in reflected sunlight, a dark olive-green fluorescence-color very similar to that of crude oil is distinctly ap-



Merry Christmas

and

Happy New Year

parent. This fact becomes significant when it is known that the fluorescence of the Clay Center fluorite under the ultra-violet lamp is identical in color and behavior to that of certain other fluorites containing petroleum inclusions.² Thus the suggestion that hydrocarbons as the activating agent of the luminescence of this fluorite seems inescapable, although it is apparent that the evidence at hand does not warrant the conclusion that such is the case. In this connection it is interesting to note the similarity of fluorescence by insolation of this fluorite to that of amber from Catania, Sicily, here obviously due to hydrocarbon content.

The fluorescence of this material under a filtered ultra-violet radiation is a strong yellowish color. Hue and relative intensity vary directly with the depth of true color of the crystals, the light colored crystals fluorescing with a strong yellow-white hue while the deep brown crystals exhibit a very strong clear yellow color.³ As stated above, the radiation employed was filtered so as to allow passage only of the ultra-violet component of wave-lengths from 3200 to 3900 Å. Under the iron spark discharge employed in some ultra-violet machines the visible light component of the radiation is so strong as to almost entirely mask the fluorescence of this material unless it is passed through a suitable filter. Under the argon glow lamp recently placed on the market,⁴ strong fluorescence of a different color is observed. The small isolated light brown crystals appear a deep orange-yellow color, while the dark brown

crystals appear a bright greenish-yellow color. Both the true color and the fluorescence color of typical Clay Center crystals are zoned, the interior always being of a deeper pigmentation than the outer zones from which the strongest fluorescence appears to emanate. This further suggests that both true color and luminescence-ability are due to the same impurification.

Strong yellow phosphorescence is shown by this fluorite after short exposure to an ultra-violet radiation. After exposure of one-half a minute to the argon glow lamp, crystals remained visible with a speedily vanishing phosphorescence for about twenty seconds. Shortening or lengthening of the irradiation did not appear to affect the period of visible phosphorescence. Phosphorescence of a yellow color is rare in fluorite although in a number of cases a greenish phosphorescence has been observed.⁵ Of all phosphorescent fluorites known to the writer the Clay Center crystals are the most brilliant.

Crushed and massive material was tested for thermo-luminescence and tribo-luminescence with negative results in both instances.

In conclusion it may be stated that since the luminescence-color of the Clay Center fluorite is so entirely unlike that of the classical examples from Weardale, Durham, England, and most other localities furnishing fluorescent material, it is worthy of extended study and a place in even the most aristocratic of mineral collections.⁷

References

1. See Ward's Natural Science Establishment Mineral Bulletin, Volume 1, No. 2, May, 1933, page 4. Many private collectors have observed this also.
2. Gunnell, E. M.: "The Photo-luminescence of Illinois fluorite and certain zinc minerals from the Joplin, Missouri, district." *Am. Min.*, 18, 2 (1933), 68-73.
3. Tests conducted in the preparation of unpublished thesis by Gunnell, E.M.: "A Study of luminescence in minerals with special emphasis on photo-luminescence." Washington University, 1931, pages 106-107 and 120.
4. The apparatus employed was essentially of the type described by Andrews, W.S.: "The production of fluorescence and phosphorescence by radiations from the carbon arc lamp." *Gen. Elec. Rev.*, 28, 9 (1925), 659-661. A Corex
5. UV Transmitting Red Purple filter glass was used.
6. Argon glow lamp manufactured by the General Electric Vapor Lamp Company, procurable from Ward's Natural Science Est., Inc., Rochester, N. Y. Its radiation is said to be between 3300 and 3700 Å.
7. Engelhardt, E.: "Lumineszenzerscheinungen der Mineralien im ultra-violetten Licht." Inaugural Dissertation, University of Jena, 1912, and Gunnell, E. M., op. cit., note 3, pages 119-121.
8. Crystallized specimens may be procured from R. W. Tuthill, 110 Earl Road, Michigan City, Indiana, and material suitable for luminescent observation from both Mr. Tuthill and from Ward's Natural Science Est., Inc., P. O. Box 24, Beachwood Sta., Rochester, N. Y.

Bulletin:

Movement for the Promotion of Mineralogy Clubs in the "Secondary Schools" of America.

I. PROMOTION AND ORGANIZATION

G. Frederick Shepherd, National Director,
Museum of Science and Industry,
Chicago, Illinois.

II. PROGRAM BUILDING AND RESEARCH

Ben Hur Wilson, National Director,
Joliet Township High School and Junior College,
Joliet, Illinois.

III. PUBLICITY AND AWARDS

Edward C. Foster, National Director,
No. 1 Kingsley Avenue,
Haydenville, Massachusetts.

Progress:—A Report on the Work Thus Far*

The promotion of clubs for the active study of Mineralogy among the younger people of America, upon the plan outlined under the Syllabus published in the June issue of ROCKS and MINERALS, is now being carried forward by a group of enthusiasts among the members of the Rocks and Minerals Association. As the movement slowly gains momentum, the need for more and more volunteer workers becomes apparent. In order that prospective leaders, who might wish to fall in line with and contribute in their own manner, towards the success of this worthy nation-wide effort may be better informed as to the nature of the work which is being undertaken, the following brief statement is made by the National Directors.

The object of the National Organization is to promote and stimulate, by the formation of Mineralogy Clubs, a renewed interest in the study of the rocks and minerals. The organizers are particularly concerned in promoting this type of activity among the younger people of the country, especially those who are of "Secondary

School" age, because we feel that at this age the mind is most impressionable, and lines of thought developed then are more likely to carry through into adult life, resulting in desirable life interests building for character and the profitable employment of leisure time.

We have also taken into consideration, the very meager opportunity which is now afforded under the usual arrangement of secondary school curricula, for obtaining even elementary training along the line of geology or mineralogy, two subjects, scarcely surpassed in their importance, or in their cultural value. Somehow, it seems, both these subjects have been almost entirely overlooked, or crowded out of the modern high school curriculum, by those who plan our courses of study, in making room for the more conventional subjects, many of which we feel are of far less value.

Two types of Clubs are being formed: First: **Local Study Clubs**, organized for the purpose of studying mineralogy, operating more or less independently of the National Association. These Clubs need not follow the outlined programs suggested by the

National Office, being free to adopt a study course of their own making, or if they choose they may use the National Program in full, or in a modified form, best adapted to their own needs. An abridged service will be furnished such unaffiliated clubs, upon request, and outlines will be sent them upon receipt of postage sufficient to cover the cost of mailing. Members of unaffiliated Clubs will not, however, be eligible to submit their papers for judging for the Monthly Awards, nor will their Club Projects be entered for final judging for any of the various Grand Awards which are to be given annually by the National Organization.

Second: **National Charter Clubs**, or those Clubs which have fully affiliated with the National Club movement, who have adopted, and operate under the National Club Constitution. These are the sustaining Clubs, the bulwark of our organization. National Charter Clubs draft and adopt their own individual By-Laws, and follow as closely as is practical the formal Monthly Study-Program, as outlined by the National Director of Program Building and Research. For the ten intervening bi-monthly meetings, it is likewise recommended that these National Charter Clubs also follow in the main, the National outline for their informal meetings; these may, however, be varied or changed to suit the convenience of the occasion, by the Sponsor or Club Program Committee, without undue injury to the plan of study, or the sequence of the outlined monthly Study-Program.

The personnel of the National Directorate has now been rounded out, as indicated at the beginning of this article, and these men are giving unstintedly of their time and abilities, without remuneration, except such satisfaction as they derive from laboring in the cause of Mineralogy. Furthermore, to date they have themselves borne cheerfully all expenses involved in their work. In return they ask only the reasonable cooperation of all those who may be vitally interested in spreading the gospel of Mineral knowledge. Our present great need is to find Regional and State Directors, who will undertake to locate and enthuse Club Sponsors who will direct the organization of Local and National Clubs. These men need not be located

in large centers, for in reality those who are living in smaller communities often have the greater opportunity and inclination to serve in such matters, in as much as the demand on their time is, perhaps, not so great as those living in the larger cities. We hope our readers may become interested in this line of work. If you are, please let us hear from you at once.

Program Outline: Continued from the September Issue

The Seventh Club Meeting

Local Program: Open House for Visitors

In every community there are those who have been interested in rocks and minerals all their life, yet who have had little opportunity to learn the simple things they would like to know concerning the origin, name and relationship of the common rocks of their own locality. With this in view, a general invitation should be extended to all such, through the local papers, and by notices. Those who are known to be interested should be given a special invitation by the members, and urged to attend.

At this meeting a display of attractive rocks and minerals, (properly named) should be made; also on a separate table should be placed the typical rocks of the surrounding region, appropriately labeled. Attending these exhibits should be those who are competent to answer all reasonable questions or to direct the questioner to citations in the literature where their information might be obtainable. Notes should be made of such questions as cannot at once be answered, which should be carefully followed up, and the answers given as soon as available.

A few short talks might be made by the Sponsor or others upon topics of general interest. Some suggested topics which might be used are here given:

1. How to know the Common Rocks.
2. The Geology of the Home Locality.
3. The location of exposures of typical local Rocks.
4. The Selection of Specimens for the Rock Garden.
5. The Industrial importance of local Rocks and Minerals.

If desired, light refreshments might be appropriately served at the close. The entire meeting should be strictly informal.

The Eighth Club Meeting

National Program:—Business Meeting and Study Hour

Program. Part I.—Business Meeting

1. Meeting called to order by the President.

2. Roll Call. (Answer by some brief mineral item or note).

3. Reading and approval of the minutes of the last meeting.

4. Consideration of old business. (Committee Reports).

5. Consideration of new business.

Plans should be discussed and arrangements made for the ninth meeting of the club, which could be a trip to some industrial plant where rocks and minerals are employed or converted into useful objects. This may be a chemical, cement, lime, gypsum or clay products plant, or some mining institution. If none of these are available, there are always in every community places where stone is worked for buildings or monuments. Much can be learned by visiting these places and talking with the foremen or superintendents. Usually new specimens may also be added to your collections upon such visits.

Part II.—The Study Hour

For this part of the meeting it might be well to digress from the usual order, and secure some outside speaker to talk to the members on some special phase of mineralogy or geology. A talk on the Gem Minerals would be appropriate, and if no speaker is available who could take up the entire time, the reading of Frederic J. Haskins' article on the "Value of Gems Mined in United States is Increasing." (See Daily Press, released Oct. 4, 1933), will be well worth while. This might then be followed by a short talk, by one of the local jewelers, who always possess more or less knowledge about gems. (This article by Haskins will be supplied free by Mr. Wilson, to those who cannot obtain it locally).

Announcement of Annual Prize Awards

As a method of stimulating more active interest in the work of the Clubs, three Grand Prizes will be

offered this year by the Director of Publicity and Awards; which are as follows:

Prize No. 1—To the Club securing the greatest number of new annual subscriptions to ROCKS and MINERALS, between now and June 1st, 1934 will be given a Fluorescent Cabinet, for examining minerals under the ultra-violet light, (by Peter Zodac, Editor of ROCKS and MINERALS) and a set of 15 minerals, (by John Grieger, of Pasadena, Calif.). All subscriptions which it is intended should be counted in on this contest, should be sent in by the Club Corresponding Secretary, and so designated at the time.

Prize No. 2.—To the Club carrying out the most notable Project, intended to interest the general public of the community in the subject of Rocks and Minerals, during the Club-work year, will be given a set of the famous Mazon Creek concretionary coal measure fossils, properly labeled, and enclosed in a permanent lid-box, (by Frank L. Fleener, Joliet, Illinois).

Prize No. 3.—To the Club which most nearly carried out the club-year program, as outlined by the National Director, Program Building and Research, will be given a set of 25 choice mineral specimens (15 by Peter Zodac and 10 by Ben H. Wilson). This set will be correctly labeled and enclosed in a permanent lid-box.

These prize contests will close July 1st, 1934, and the report on the same made out by the Club's Corresponding Secretary must be in the hands of the National Director, Publicity and Awards, not later than July 13th, 1934. All questions concerning the adoption and working out of suitable projects should be directed to the National Director, Program Building and Research.

B. W. H.

*Editor's Note:—We are pleased to acknowledge the universal approval of our efforts to stimulate by various methods more interest in the subject of Mineralogy, and we are particularly gratified at the interest which is being shown in our endeavor to lay a broader foundation for future development among the young people of the present generation, who in the course of time must step into our places, and carry on the work, as those of the older generation drop out. In order that all our readers may be informed of our aims and objectives, and of the ideals of those who are actively engaged in the promotion of Mineralogy Clubs upon a National Scale, we are printing the above summary, explaining the status of the work to date.

PETER ZODAC, Editor and National Sponsor.

The Amateur Lapidary

Conducted by J. H. HOWARD*

504 Crescent Ave., Greenville, S. C.

Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all.

*Author of—*The Working of Semi-Precious Stones*. A practical guide-book written in non-technical language for those who desire to cut and polish semi-precious stones.

FROM GEMS TO JEWELRY

By

ARTHUR KNAPP

The writer has been interested in gem cutting for the past two years and in that time has accumulated a large number of cut gems. The problem arises of what to do with them. Of course they are beautiful when properly displayed but that does not do ones friends much good and if gems are given away, then the friends must get them mounted before they are usable and the cost of made-to-order jewelry runs quite high.

It seems impossible to buy settings without gems. I have tried jewelry houses, old gold shops and pawn shops without success. There remains the alternative of making ones own jewelry.

This is not as hard as it seems. There are many good books on the subject and these give detailed and practical instructions.

I believe that the lapidary will never have a complete understanding of his art until he has mounted some gems and gets the viewpoint of the setter as to what constitutes a good gem.

The tools and accessories necessary to make a start are few and not expensive. Nearly every lapidary has Dixon's catalog,* which is full of information on the supplies necessary for this work. His book section lists instruction books that are indispensable for the beginner. Fig. 27 "Simple Soldering, Both Hard and Soft" and Fig. 2 "Hand Wrought Jewelry" are suggested as ideal for the be-

ginner. These will give the worker a start and carry him to the point where experience will point out his road.

Sterling silver is recommended for the beginner. Many amateur jewelers never work in anything else especially at the present when white jewelry is so popular. In order to give the reader some idea of the initial cost of tools and supplies necessary to do this work, a list of these follows:

Files, 6"	Pillar fine cut	\$.45
Files, Barrette Escapement .....	.....	.21
Files 14 C/M Needle, fine cut,		
half round .....	.....	.20
Files, Needle, fine cut, knife ..	.....	.20
Files, Needle, fine cut, barrette..	.....	.20
Files, Needle, fine cut, equalling.	.....	.20
Files 16 C/M Needle, medium		
cut, equalling .....	.....	.23
Jewelers Saw Frame .....	.....	.125
Jewelers Saws, No. 1, per doz ..	.....	.13
Pliers long nose, chain .....	.....	1.00
Plain pointed lock tweezers ..	.....	.35
Clipped silver solder, 3 dwt.	.....	.40
Amerine soldering flux, 4 ozs. ..	.....	.30
Alcohol blow torch .....	.....	.50
Hand drill .....	.....	.75
Drills, per doz. ....	.....	.75
Side cutting nippers .....	.....	1.00
Polishing rouge .....	.....	.40
Pumice powder .....	.....	.15
Sterling silver sheet, 18 ga. per		
sq. in. about .....	.....	.15
Sterling silver wire 22 ga. per ft.		
about .....	.....	.15
Bezel wire, silver bezel wire per		
foot about .....	.....	.40

Cleaning and polishing equipment has been omitted from this list because the particular machinery available will govern the selection of scratch wheels and buffers. Hand cleaning and polishing is very tedious and is likely to discourage the amateur. Therefore some kind of motor driven buffer should be used. A flexible shaft is the ideal equipment because there are so many operations that may be done with the many drills, burrs, grinding wheels, brushes, buffers etc., which are available for use with it. It is suggested that the gravers, scrapers, setting tools, tracers, punches, drapping punches, etc. may be made from tool steel which costs from ten to twenty cents per foot. This scheme not only allows of a saving in cost but also permits the worker to have tools suitable to his particular work. None of these latter mentioned tools are essential to the beginning of work.

There is one practical reason why the amateur lapidary should do some jewelry making. While it is difficult to sell gem stones bare, it is compara-

tively easy to sell handwrought jewelry and at prices that will bring in something to help along the lapidary end of the business. The suggestions contained in this paper are intended for the lapidaries who are interested in jewelry making as a hobby and not at all for the man who proposes to go into the business on a commercial scale.

**Arts and Crafts Catalog*. Published by William Dixon, Inc., 32-36 E. Kinney St., Newark, N. J.—Editor.

Directory of Active Amateur Lapidaries

Beets, Norman, 246 E. 8th St., Brooklyn, N. Y.
 Bickford, W. S., Norway, Maine.
 Cooper, R. B., Llano, Tex.
 Dwyer, Joseph, 1633 E. 36th St., Brooklyn, N. Y.
 Owens, Rev. R. B., So. Boulevard, Charlotte, N. C.
 Sayler, Dr. H. L., 927 Clinton Ave., Des Moines, Ia.
 Reitsch, C. W., 931-14th St. Denver, Colo.

ROCKS AND MINERALS ASSOCIATION FIRST NATIONAL OUTING (Continued from September Issue)

MAINE

Leonard H. Starbird, Director

Disregarding threatening weather conditions, on Sunday, July 9, 1933, at 6:15 A. M. a group of seventeen persons left Portland, Maine in automobiles on the joint outing and field day of the Rocks and Minerals Association and the Maine Mineralogical and Geological Society as Maine's contribution towards making the National Outing a success. The objective of the trip was the pegmatite deposit on Hall's Ridge at Newry, Maine.

The party left Portland, journeyed through Auburn to Canton and followed the Androscoggin River to Rumford Center, after stopping at Ridlonville to pick up a collector. At Rumford Center the improved highway was left behind and a gravel road followed the Ellis River to the base of the ridge at Newry, where the party arrived at about 10:00 A. M. after covering a distance of about

ninety miles. Here, at the base, eight collectors were awaiting the arrival of the Portland group.

In a light rain, the party ascended the 900 foot rise to the quarry above via an old truck road. A few of the members of the group stopped at a test hole on the way up where they obtained some rhodochrosite with siderite. After a climb, taking about an hour's time to reach the quarry which is about one mile from the main road, nearly all were a bit fatigued but this was soon forgotten after they began working on the large dumps. While all were busy collecting, four more collectors arrived bringing the total number present up to thirty. Although the clouds hung low, the rain stopped before noon and no more fell during the balance of the day. After stopping to eat lunch or for an occasional rest, at 4:30 P. M. a halt was called and after packing up the material collected, the party descended the ridge and left for home.

(Continued on page 156)

Field Museum Notes and News

Contributed by
THE FIELD MUSEUM OF NATURAL HISTORY Items
Chicago, Ill.

Dr. Oliver Cummings Farrington, veteran curator of geology at the museum, and one of the world's leading authorities on meteorites and on gems and gem minerals, died Thursday, November 2 at Billings Memorial Hospital. Dr. Farrington, who was 69 years old, had been seriously ill for several months, suffering from heart trouble and complications.

Dr. Farrington was the dean of the museum staff, which he joined early in 1894 within a few months after the founding of the museum. He was head of the department of geology from the start. Previous to his connection with the museum he was a teacher of science in various eastern academies, and was connected for a time with Yale University, and with the United States National Museum. From 1894 to 1904, in addition to his duties at the museum, Dr. Farrington served as lecturer on mineralogy at the University of Chicago. He was the author of several well-known books on gems and gem minerals, and on meteorites, and a frequent contributor to leading scientific publications issued by Field Museum. He led a number of expeditions for Field Museum, the most notable of which was the Marshall Field Geological Expedition to Brazil in 1922 and 1923. He was a collaborator in organizing the mines and metallurgy exhibits at the Paris Exposition in 1900; a member of the International Jury of Awards at the St. Louis Exposition in 1904; president of the American Association of Museums in 1915-16; a fellow of the Geological Society of America and the American Association for the Advancement of Science; honorary president of the Society for Research on Meteorites; and a member of Sigma Xi and Phi Beta Kappa. Some years ago the trustees of Field Museum elected him a life member of the Institution.

Dr. Farrington was born in Brewer, Maine, on October 6, 1864. He re-

ceived his bachelor's and master's degrees in science at the University of Maine, and earned his doctorate at Yale in 1891. Dr. Farrington in recent years has been living at the Windermere Hotel West. He is survived by his widow, who, before their marriage in 1896, was Clara A. Bradley of New Haven, Conn.

Five specimens which illustrate the method of cutting a gem from rock crystal in the form known as "varni-star" have been placed on exhibition in the department of geology at the museum. The specimens were presented by Stephen Varni of New York.

This exhibit shows the successive stages of shaping and polishing which intervene between the rough crystal and the finished gem. They also demonstrate the remarkable increase of brilliancy and fire imparted to gem stones by the skill of the modern lapidary.

"Gems in the rough never display their maximum brilliancy," states Henry W. Nichols, associate curator of geology. "This can be developed only by skillful cutting. The surface of most fine gems is formed of many small polished planes or facets. Much of the brilliancy depends on the form, position and angles of these facets, although much depends also upon the general shape and intrinsic brilliancy of the stone. The positions and angles of the facets are so designed as to cause a maximum amount of light which enters the stone to be caught and thrown back through the front face. Slight changes in either the form of the gem or the facets would seriously impair the brilliancy. The skillful cutting which increases the brilliancy of a gem also enhances its fire or the sparkle of flashes of colored light which seems to emanate from the gem. Maximum brilliancy and fire characterize skillfully cut gems of modern times,

and compared with these, gems of ancient workmanship seem dull and lifeless."

Some placer gold which was mined by a duck at Cold Spring-on-Hudson, N. Y., has been presented to the museum by Frederick Blaschke and is now exhibited with other placer gold in Frederick J. V. Skiff Hall of the museum. The specimen consists of particles of gravel mixed with flakes of gold. The gold occurred in a deposit of glacial gravel and was appropriated by the duck as part of the gravel he needed to assist his digestion. In so doing the duck displayed more keenness of vision than of intellect, for the soft particles of gold are decidedly inefficient grinding agents for use in a

bird's crop (which is where Mr. Blaschke found them), says Henry W. Nichols, associate curator of geology.

"The ice of the glacier that covered the north of the continent during the glacial period originated in the north and traveled south, and on its way, when passing over a deposit of gold ore it sometimes picked up a few grains of gold and carried them south mixed with the clay, sand and rock fragments with which the ice was loaded. When the ice melted and dropped its load to form the mantle of glacial drift which covers the northern United States it also dropped the gold. No worth while concentrations of gold of this origin have ever been found, nor are any likely to be, but a few flakes have been found in numerous places in the moraines."

Club and Society Notes

Mineralogical Society of Southern California

The 24th meeting of the Mineralogical Society of Southern California was held Oct. 9 in the Pasadena Public Library. Mr. Earl Draper, superintendent of the Emsco Asbestos Co., spoke on the geology and mining of asbestos, illustrating his splendid talk with specimens of chrysotile of various colors and samples showing the variations in length of fibers as found in widely distributed commercial deposits. A talk also was given by Mr. M. R. Ebersole, advertising manager of the Emsco Asbestos Co., on the history, fabrication, and uses of asbestos products.

Wendell O. Stewart, a member of the society exhibited a table of volcanic bombs from Haleakala Crater on the Island of Maui, Hawaii, and spoke a few words on his experiences while collecting minerals on the Hawaiian Islands during the past summer.

Fifty members attended the field trip Oct. 15, held on Parker Mountain in Soledad Canyon, where excellent calcite and quartz geodes, and blue

agate nodules were found in a dike of weathered igneous rock. Howlite and Colemanite borax were also collected at the Sterling borax mine in Tick canyon, a tributary to Soledad Canyon.

Newark Mineralogical Society

The Newark Mineralogical Society held its 138th regular meeting in the library of the Newark Technical School on Sunday afternoon, October 1, 1933, with the president, Louis Reamer, presiding. There was a fair attendance of members and guests.

The program for the afternoon consisted of a symposium on Summer collecting. Vice-president, Ernest A. Maynard, spoke at length on the minerals he had collected during the past summer in Nova Scotia. His talk was illustrated with map, photographs and specimens. Talks were also given by Herbert B. Baldwin, Paul Walther, Leonard A. Morgan, John A. Grenzig, Aubrey J. Slater, President Reamer and other members. Many specimens were on exhibition from Anthony's Nose, Sayreville, South River, Bedford, North Carolina and Herkimer County, New York.

Our Junior Club *Conducted by* ILSIEN NATHALIE GAYLORD

Dear Juniors:

All ready, are we, for our second Club meeting? So many new members have joined from all over the United States, some from far-away California and others all across the country. As soon as we have had a little more study and time for the new members to find some good specimens, we will begin a correspondence list. It will be so interesting to write to one another about our collections, and to exchange specimens.

There is no knowing when any of us, even the newest collectors, may find some splendid specimen of rock or gem. The other day, Gordon Scott, twelve years old, was throwing stones into a big pond near his home in Massachusetts. Sticking out of the earth was a queer looking stone not at all like the others around it. He dug it out and found it was full of garnets. One of them he had set in a ring for his mother. That was a fortunate find, wasn't it?

Then a few years ago some boys who were out for a walk through the Maine woods happened to notice some pretty stones and took them home. Men investigated the place where the boys had found the stones, and discovered that the hill was full of beautiful gems.

In one of the southern states some children on a picnic also discovered a similar deposit of gems. So you see that the earth is like a large grab-bag. One never knows when some fascinating treasure will be pulled out of it.

Such specimens as those mentioned are not frequently found, perhaps. But all sorts of equally interesting, and sometimes much rarer specimens we are apt to find anywhere or at any time. Geologists tell us that Gordon Scott's garnet-studded rock was brought down from Canada and buried here by a great glacier at least 25,000 years ago. Only now the soil that

covered it was washed away—and Gordon was there to spy it.

When any of you Juniors find unusual or especially attractive specimens, won't you write about them for our Club meetings here? We are all so interested to hear what other Club members are finding all over the United States.

THE STORY OF THE ROCKS

For our Club lesson today, two small rocks are to tell us their stories. The first one is this little granite rock here in the path. Last month we learned how very important granite is, and what a place of honor we should give it in our collections. One reason is that it was the very first kind of rock on earth, and another reason is because the thick upper layer of our big rocky world is made mainly of granite. Were it not for this firm granite crust, we could not live on earth. That is how important granite is to man.

Now we will let this little piece of granite rock tell us how it was made. Do you see these small particles in it, some light ones and some dark ones, all locked firmly together into one mass? Those particles are different minerals. Long ages ago they were far down in the earth where it was very hot. Down there they were not at all as they are now. They were all melted in that terrific heat.

But finally great changes came to the earth. Vast parts of it were pushed up to help make the mountains. Out on top of the earth, away from that terrible heat, slowly the minerals cooled and hardened, each into its own shape and color, and each locked closely to its neighbors.

That is how the little speckled granite rock was made, as well as the big granite masses from which it was broken. In another lesson all the different minerals, which make this little rock look so speckled, are going to tell us their stories too. Beautiful

chips of granite of various colors you may usually get for your collection, from a monument cutter's shop, if there is one near your home or city.

SLATE

What do you suppose that this bit of mud-colored slate, chipped from that old black-board by the desk has to tell us? Why, it is going to tell us that once it was mud, soft sticky, wet mud. That was long ages ago.

In the great depressions and upheavals that came to the earth the mud was so squeezed and pressed, baked and dried, it was finally changed into this black stone that we call slate. So you see, we are using a black-board that nature made for us thousands upon thousands of years ago.

But that is not the only story that our bit of slate can tell us. Although there are no marks on this piece, some of its companion pieces had very strange marks, very strange marks indeed! Some of them were imprints of raindrops that spattered on the slate when it was soft mud in those long, long ago ages. Think of being able to touch with our fingers the raindrop imprints from a shower that fell perhaps millions of years ago!

But even that is not all the secret of the slates. On some of them are the foot-prints of queer birds and strange creatures that lived and ran along those muddy shores ages upon ages ago. When the mud hardened and changed into rock, their foot-prints still remained, and there we find them today.

Never again will sticky black mud seem to us quite so unpleasant, for always now we will remember the wonderful gifts it has so carefully brought down for us through all the long ages of the past. Surely you will want for your collection a piece of this ancient slate with its strange raindrops and bird-track imprints that were left upon it.

FROM OUR JUNIORS

A fine letter has come from one of our Club members, Paul Zimmer, of Ohio, who says he has about three hundred and fifty specimens of rocks and minerals, and about fifty fossils. That is splendid, for Paul who is fifteen years old, has been studying geology for only three years.

Near his home there are several quarries, and a place where feldspar

is crushed. It is from these sources that he has collected many of his specimens. We hope he will write again and tell us about some of his collecting trips, and of the especially interesting specimens he has found.

Also some good letters have come from William McKinley, of Illinois, who is one of our older Juniors. His letters were full of enthusiasm and good wishes for our Junior Club. He has a large collection not only of minerals, but also a fine set of pictures of especially important ones. Do you suppose we could persuade Mr. McKinley to tell us about some of his most interesting specimens? We should all very much enjoy hearing about them.

Such enthusiastic nature lovers are the Captain and girls of the Oak Tree Troop of Girl Scouts, of Lexington, Massachusetts. Eagerly they are working over the answers to the Question Box, hoping to win a first class prize. Recently they started a Troop nature collection, and already have a nice group of minerals as well as other specimens. The fine prizes for our Question Box answers will make a splendid addition to their collection if they win them. They have taken five subscriptions to ROCKS and MINERALS, so that each group in the Troop may have its own copy.

The members of the Four Leaf Clover Club, also of Lexington, Massachusetts, are enthusiastic nature students, and we expect they will be winning a number of interesting Question Box prizes.

THE QUESTION BOX

1. What makes such a solid rock as granite crumble into pieces?
2. Why is there so much sand along the sea coasts?
3. What will probably become of it as ages pass?
4. How were the sandstones made, that we use in our buildings?
5. In our first Club lesson we learned that limestone was made by the lime shells of tiny dead sea creatures falling to the ocean floor, and forming vast beds of limestone as ages passed. Do you think there are any limestone beds being made like that now?
6. What kind of rock was nature making ages ago, so that we might have it to eat now with our food?

PRIZES

A first class prize will be given for the correct answers to all the questions.

A second class prize will be given for the correct answers to any four of the questions.

A third class prize will be given for the correct answers to any three of the questions.

Think carefully about your answers, for we have some splendid prizes all

ready for the fortunate winners. The questions are graded so as to include the older Juniors and the newest beginners. Send your answers by January 15th, to Junior Club, ROCKS and MINERALS, Peekskill, N. Y. The names of the September prize winners will be in the January ROCKS and MINERALS, and the December winners will be listed in March. Now good luck to you all, and a Happy Holiday Season!

ROCKS AND MINERALS ASSOCIATION FIRST NATIONAL OUTING

(Continued from page 151)

Although no remarkable finds were made, each collector present appeared to have had a pleasant outing, a load of specimen material with which to remember it, and to have left many a rock turned over to greet the next visitor to the quarry.

The Director of the Maine Outing wishes to here express his appreciation for the aid and courtesy of all those who helped to make the affair a success, and especially is he grateful to the officers who served under him and who represented the Maine Mineralogical and Geological Society, its Board of Governors, its Secretary, Mr. Beach, for his fine cooperation; to those who furnished transportation for others; to those who aided in obtaining and identifying specimens for those unfamiliar with the locality; and to all those who attended, thereby making this outing the finest field mineral meeting ever held in the State of Maine.

MONTANA

No outing held.

NORTH CAROLINA

Mark Sheppard, Director

A very successful day was spent here by a group of fifteen enthusiastic mineral collectors visiting four of the mines in the highly mineralized region about Spruce Pine.

The first mines to be visited were the Chestnut Flats and Sugartree Cove Mines of the Whitehall Company which have been large producers of feldspar. The Chestnut Flats Mine yielded some fine specimens of mica with garnet inclusions. A great many other minerals associated with the

pegmatites at these mines were also collected.

The old Flat Rock Mica Mine was the next to be visited, and is being operated at the present time by J. C. Pitman and the Whitehall Company for feldspar and mica. During its early operation it was an important producer of uranium ores. Uranotil was originally identified at this mine and at one time was quite common.

After luncheon at the Topliff Hotel in Spruce Pine, the No. 1 Biotite Mine of the English-Richmond Mica Company was visited. The schist at this mine contains fine beryls and actinolite, and a number of good quality specimens were collected.

WASHINGTON

No outing held.

Create Memorial Fund

For Distinguished Scientist

Friends of the late Professor U. S. Grant have created a fund to commemorate his distinguished services as a scientist and teacher by series of lectures on some phase of geology, to be given at Northwestern University. The first series will be given by Dr. W. H. Collins, Director of the Geological Survey of Canada, on November 21, 22 and 23, 1933. The subjects of Dr. Collins' lectures are "The economic future of northern Canada," "Major correlative problems of the Great Lakes Region" and "The Sudbury mining field."

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